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EXAMINER	
NOGUEROLA, ALEXANDER STEPHAN	
ART UNIT	**PAPER NUMBER**
1753	

DATE MAILED: 03/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/657,760	PACE ET AL.	
	Examiner	Art Unit	
	ALEX NOGUEROLA	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17 and 24-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17 and 24-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/28/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Status of Rejections pending since the Office action of May 27, 2005

1. All previous rejections are withdrawn.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 6, and 10-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Vincent et al. (WO 99/46587 A1) ("Vincent").

Addressing claim 1, Vincent discloses a sensory apparatus comprising

a substrate (10) comprising a plurality of sensors (12) to obtain an analyte profile (abstract), the sensors including an ion-selective sensor capable of measuring ion content (pH sensor, which measures H^+ concentration) (page 6,

lines 10-21) and a chlorine sensor capable or measuring chlorine content (page 6, lines 10-21).

Addressing claim 6, Vincent incorporates by reference GB2290617 A for suitable sensors. See in Vincent page 6, penultimate paragraph. The chlorine sensor in GB2290617 A is an amperometric sensor. See Figure 2 and page 6, lines 7-10.

Addressing claim 10, for the additional limitation of this claim see page 6, lines 10-21 and note at least the oxygen sensor and ammonia sensor.

Addressing claim 11, for the additional limitations of this claim see page 6, lines 10-24 and Figure 1.

Addressing claim 12, for the additional limitations of this claim see Figures 1, 3, and 5.

4. Claims 1, 2, 6, 8, 9, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by newly cited JPO computer English language translation of Yasutaka et al. (JP 2001-153836 A) ("Yasutaka").

Addressing claim 1, Yasutaka discloses a sensory apparatus comprising

a substrate (1) comprising a plurality of sensors (30, 20, 50) to obtain an analyte profile (abstract), the sensors including an ion-selective sensor capable of measuring ion content ((30) - pH sensor, which measures H^+ concentration) and a hypochlorous sensor (20) capable or measuring chlorine content (Applicants' specification states that hypochlorous acid is a form of free chlorine – see page 3:15-20).

Addressing claim 2, for the additional limitation of this claim see [Problem(s) to be Solved by the Invention] and [0004] and [0005] in Detailed Description; and Technical Problem)

Addressing claim 6, for the additional limitation of this claim see [0001]-[0004] in Detailed Description and note that the improvement of the Yasutaka invention is a more accurate current measurement indicative of chlorine concentration.

Addressing claim 8, for the additional limitation of this claim see the abstract, which discloses also at least a temperature sensor.

Addressing claim 9, for the additional limitation of this claim see the abstract; [0030] in Detailed Description; Technical Problem; and [Means for Solving the Problem] in Means).

Addressing claim 11, for the additional limitations of this claim see [0017] in Detailed Description and Drawings 1, 6, and 11.

5. Claims 1, 2, 6, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by newly cited JPO computer English language translation of Tsuneji et al. (JP 2001-108652 A) ("Tsuneji").

Addressing claim 1, Tsuneji discloses a sensory apparatus comprising

a substrate (17) comprising a plurality of sensors (12,18) to obtain an analyte profile (abstract), the sensors including an ion-selective sensor capable of measuring ion content ((18) – hydrogen ion-sensitive electrode) and a chlorine sensor (20) capable or measuring chlorine content (abstract; [Field of the Invention] in Detailed Description; [0012] and [0008] in Detailed Description).

Addressing claim 2, for the additional limitation of this claim see the abstract; [0030] in Detailed Description; and [Means for Solving the Problem] in Means).

Addressing claim 6, for the additional limitation of this claim see [0030] in Detailed Description and note that chlorine is measured by measuring current due to a voltage applied across a measurement electrode and a reference electrode.

Addressing claim 8, for the additional limitation of this claim see the [0030]-[0031] in Detailed Description, which implies also at least a temperature sensor since there is a temperature controller than maintains the temperature of the sample liquid within a narrow, specified temperature range.

6. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by newly cited Leaders (US 6,003,164) ("Leaders").

Leaders discloses a sensory apparatus comprising

a substrate (52) comprising a plurality of sensors (54,56,58) to obtain an analyte profile (abstract), the sensors including an ion-selective sensor capable of measuring ion content ((56) – pH sensor, which measures H^+ concentration, or (58) – alkalinity sensor) and a chlorine sensor (54) capable or measuring chlorine content (col. 5:32-35).

7. Claims 1, 3, 10, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by newly cited Wong et al. (US 5,330,634) ("Wong").

Addressing claim 1, Wong discloses a sensory apparatus comprising

a substrate (16) comprising a plurality of sensors (32a, 32b, 32c, 32d, ...) to obtain an analyte profile (abstract), the sensors including an ion-selective sensor capable of measuring ion content (col. 5:1-17, especially lines 10-14) and a chlorine sensor (col. 5:1-17, especially line 16) capable or measuring chlorine content (col. 5:1-17, especially line 16).

Addressing claim 3, for the additional limitation of this claim see col. 5: 1-17, especially lines 10-14.

Addressing claim 10, for the additional limitation of this claim see col. 8:41-50, which discloses at least also an oxygen sensor.

Addressing claim 13, Wong discloses a sensory apparatus comprising

a substrate (16) comprising a plurality of sensors (32a, 32b, 32c, 32d, ...) to obtain an analyte profile (abstract), the sensors including an ion-selective sensor capable of measuring calcium content (col. 5: 1-17, especially lines 10-14) and a chlorine sensor (col. 5:1-17, especially line 16) capable or measuring chlorine content (col. 5:1-17, especially line 16).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leaders (US 6,003,164) ("Leaders") in view of JPO computer English language translation of Tsuneji et al. (JP 2001-108652 A) ("Tsuneji").

Leaders discloses a sensory apparatus comprising

a substrate (52) comprising a plurality of sensors (54,56,58) to obtain an analyte profile (abstract), the sensors including an ion-selective sensor capable of measuring ion content ((56) – pH sensor, which measures H^+ concentration, or (58) – alkalinity sensor) and a chlorine sensor (54) capable or measuring chlorine content (col. 5:32-35).

Although Leaders discloses an analyzer, Leader does not mention that the analyzer corrects for chlorine sensor measurement based on the analyte profile.

Tsuneji discloses a sensory apparatus comprising a substrate (17) comprising a plurality of sensors (12,18) to obtain an analyte profile (abstract), the sensors including an ion-selective sensor capable of measuring ion content ((18) – hydrogen ion-sensitive electrode) and a chlorine sensor (20) capable or measuring chlorine content (abstract; [Field of the Invention] in Detailed Description; [0012] and [0008] in Detailed Description). Tsuneji further discloses an analyzer that corrects the chlorine sensor measurement based on the analyte profile. see the abstract; [0030] in Detailed Description; and [means for Solving the Problem] in Means).

It would have been obvious to one with ordinary skill in the art at the time of the invention to have the analyzer corrects for chlorine sensor measurement based on the analyte profile as taught by Tsuneji in the invention of leaders because then the chlorine measurement (and pH measurement) will be more accurate. See Technical Problem. This is especially important in Leaders because chorine, acid, or base will be dispensed into a pool based on the sensor measurements so accurate measurements are desirable for the safety and health of the people using the pool. See the abstract and col. 2:25-35.

12. Claims 4 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wong et al. (US 5,330,634) ("Wong") in view of Ishizuka et al. (US H745) ("Ishizuka").

Addressing claims 4 and 14, Wong discloses a sensory apparatus comprising

a substrate (16) comprising a plurality of sensors (32a, 32b, 32c, 32d, ...) to obtain an analyte profile (abstract), the sensors including an ion-selective sensor capable of measuring ion content (col. 5:1-17, especially lines 10-14) and a chlorine sensor (col. 5:1-17, especially line 16) capable or measuring chlorine content (col. 5:1-17, especially line 16).

Although Wong discloses including a variety of sensors Wong does not mention providing a carbonate ion sensor. See col. 12:56-62.

Ishizuka discloses an ion-selective electrode for measuring carbonate concentration (CO_3^{2-} or $H\ CO_3^-$). See the abstract and col. 6:66-69. It would have been obvious to one with ordinary skill in the art at the time of the invention to include a carbonate ion sensor as taught by Ishizuka in the invention of Wong because as taught by Ishizuka the bicarbonate or hydrogencarbonate buffer system is the most important buffer system in the living body. See col. 1:18-24. A carbonate sensor as taught by Ishizuka would thus enhance the sensory apparatus of Wong, which is a multi-analyte diagnostic sensor array.

13. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leaders (US 6,003,164) ("Leaders") in view of Morrison (GB 2368838 A) ("Morrison") or Maung et al. (US 5,687,091) ("Maung").

Leaders discloses a sensory apparatus comprising

a substrate (52) comprising a plurality of sensors (54,56,58) to obtain an analyte profile (abstract), the sensors including an ion-selective sensor capable of measuring ion content ((56) – pH sensor, which measures H^+ concentration, or (58) – alkalinity sensor) and a chlorine sensor (54) capable or measuring chlorine content (col. 5:32-35).

Leaders does not mention whether the chlorine sensor is configured to measure

free chlorine and total chlorine. It should be first noted that from Applicants' specification there appears to be a separate sensor for free chlorine and for total chlorine. See the table at the top of page 11 of the specification and page 18, line 5.

Morrison discloses a sensory apparatus comprising a plurality of sensors (22,23,24,25) to obtain an analyte profile (abstract), the sensors including an ion-selective sensor capable of measuring ion content ((21) – pH sensor, which measures H^+ concentration) and a free chlorine sensor (22) capable or measuring chlorine content (page 6, line 32) and a total chlorine sensor ((23) – page 6, line 33 and page 3, lines 1-6.

Maung discloses a sensory apparatus comprising

a substrate (20) comprising a plurality of sensors (12,14,16,18) to obtain an analyte profile (abstract), the sensors including an ion-selective sensor capable of measuring ion content ((12) – pH sensor, which measures H^+ concentration) and a chlorine sensor (54) capable or measuring free or total chlorine content (col. 4:55-66 and col. 6:1-4).

It would have been obvious to one with ordinary skill in the art at the time of the invention to provide a free chlorine sensor and total chlorine sensor as taught by Morrison or a combined free and total chlorine sensor as taught by Maung in the invention of Leaders because then sufficient oxidizing agent will be dispensed to the process stream or another water treatment activated. See in Morrison page 1, line 1 – page 4, line 17 and in Maung col. 6:1-17; col. 6:42-49; and abstract.

14. Claims 7 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wong et al. (US 5,330,634) ("Wong") in view of Ishizuka et al. (US H745) ("Ishizuka") and Taira et al. (US 6,635,683 B1) ("Taira").

Addressing claim 7, Wong discloses a sensory apparatus comprising

> a substrate (16) comprising a plurality of sensors (32a, 32b, 32c, 32d, ...) to obtain an analyte profile (abstract), the sensors including an ion-selective sensor capable of measuring ion content (col. 5:1-17, especially lines 10-14) and a chlorine sensor (col. 5:1-17, especially line 16) capable or measuring chlorine content (col. 5:1-17, especially line 16).

Although Wong discloses including a variety of sensors, including also a calcium sensor (col. 8:41-47), Wong does not mention providing a carbonate ion sensor and a bicarbonate ion sensor. See col. 12:56-62.

Ishizuka discloses an ion-selective electrode for measuring carbonate concentration (CO_3^{2-} or $H\ CO_3^-$). See the abstract and col. 6:66-69. It would have been obvious to one with ordinary skill in the art at the time of the invention to include a carbonate ion sensor as taught by Ishizuka in the invention of Wong because as taught by Ishizuka the bicarbonate or hydrogencarbonate buffer system is the most important buffer system in the living body. See col. 1:18-24. A carbonate sensor as taught by

Ishizuka would thus enhance the sensory apparatus of Wong, which is a multi-analyte diagnostic sensor array.

Taira discloses a film responsive to bicarbonate ion for use in a bicarbonate sensor. See col. 1:1-15. This film can be used in a variety of sensor structure. See col. 24:41-50. It would have been obvious to one with ordinary skill in the art at the time of the invention to include a bicarbonate sensor as taught by Taira in the invention of Wong as modified by Ishizuka because bicarbonate ion "... is an important factor in revealing the state of respiratory and metabolic functions in the living body, information useful for the diagnosis of various diseases such as diabetes mellitus and renal disorders can be obtained by the measurement of hydrogencarbonate." See col. 1:51-56.

Addressing claim 16, Wong discloses a sensory apparatus comprising

a substrate (16) comprising a plurality of sensors (32a, 32b, 32c, 32d, ...), including

a free chlorine sensor (col. 5:1-17, especially line 16 and col. 8:41-50);

a pH sensor (col. 5:1-17 and col. 8:41-50); and

a calcium ion sensor (col. 5:1-17 and col. 8:41-50).

Although Wong discloses including a variety of sensors Wong does not mention providing a carbonate ion sensor and a bicarbonate ion sensor. See col. 12:56-62.

Ishizuka discloses an ion-selective electrode for measuring carbonate concentration (CO_3^{2-} or $H\ CO_3^-$). See the abstract and col. 6:66-69. It would have been obvious to one with ordinary skill in the art at the time of the invention to include a carbonate ion sensor as taught by Ishizuka in the invention of Wong because as taught by Ishizuka the bicarbonate or hydrogencarbonate buffer system is the most important buffer system in the living body. See col. 1:18-24. A carbonate sensor as taught by Ishizuka would thus enhance the sensory apparatus of Wong, which is a multi-analyte diagnostic sensor array.

Taira discloses a film responsive to bicarbonate ion for use in a bicarbonate sensor. See col. 1:1-15. This film can be used in a variety of sensor structure. See col. 24:41-50. It would have been obvious to one with ordinary skill in the art at the time of the invention to include a bicarbonate sensor as taught by Taira in the invention of Wong as modified by Ishizuka because bicarbonate ion "... is an important factor in revealing the state of respiratory and metabolic functions in the living body, information useful for the diagnosis of various diseases such as diabetes mellitus and renal disorders can be obtained by the measurement of hydrogencarbonate." See col. 1:51-56.

15. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gazzari et al. (EP 0933635 A2) ("Gazzarri") in view of Denison et al. (WO 97/42497 A1) ("Dennison").

Gazzarri discloses an apparatus for analyzing water quality (abstract), comprising a plurality of ion-selective sensors for measuring ion content of the water (abstract and [0001]), each ion-selective sensor including a sensor element comprising an electrode and an ion-selective membrane on a substrate (col. 3:26-34 and Figure 3); a chlorine sensor (abstract and [0001]) comprising a working electrode and a counter electrode on the substrate (col. 3:26-51 and Figure 3); and an analyzer unit connected to the sensor elements (Figure 4 and [0015], wherein the sensor elements transmit signals to eh analyzer and wherein the analyzer calculates an analyte profile based on the signals ([0015], [0016], and [0021]).

Gazzarri does not mention whether the chlorine sensor is amperometric, although it should be noted that Gazzarri does disclose measuring current ([0006]) and whether the chlorine sensor is an amperometric sensor is arguably just an intended use that does not structurally further limit the sensor.

Dennison discloses measuring chlorine concentration using an amperometric cell having a working electrode, counter electrode, and a reference electrode and a pH sensor (which Gazzarri also provides (abstract and [0001]). See the Dennison abstract.

It would have been obvious to one with ordinary skill in the art at the time of the invention to have the chlorine sensor be a amperometric cell as taught by Dennison in the invention of Gazzarri because as taught by Dennison because then accurate

chlorine measurements can be made on unbuffered water, which "is a significant advance over the prior art since the expense associated with addition of buffers and disposal of the buffered water are avoided. Furthermore the electrochemical measurement (i.e. using the cell of the kind defined) and the pH measurement may be effected on the same sample of water so that the need for separate measurements on buffered and unbuffered samples is avoided." See page 4: paragraph beginning "according to the present invention... " to page 5: last line.

16. Claims 24-26 are rejected under 35 U.S.C. 103(a) as being anticipated by newly cited Gazzari et al. (EP 0933635 A2) ("Gazzarri") in view of JPO computer English language translation of Yasutaka et al. (JP 2001-153836 A) ("Yasutaka"), Derwent abstract of Zh Shio Jigyo Cent[Shion] (JP 10-206366 A) ("Shion"), and Thomas et al. (US 6,103,179) ("Thomas").

Addressing claim 24, Gazzari discloses a sensor apparatus (abstract) comprising

a substrate comprising a plurality of sensors (abstract and Figure 3), including

a chlorine sensor (abstract and [0001]);

a pH sensor (abstract and [0001]);

a conductivity sensor (abstract and [0001]);

a temperature sensor (abstract and [0001]);

a first ion selective electrode sensor (F^-, e.g., abstract; [0001]; and col. 3:25-41);

a second ion selective electrode sensor (NH_4^+, e.g., abstract; [0001]; and col. 3:25-41); and

an analyzer (Figure 4 and [0021]).

Gazzari does not mention having the analyzer configured to correct a measurement of the first ion selective electrode sensor based upon the measured conductivity and temperature, and wherein the analyzer is configured to correct a measurement of the chlorine sensor based upon the measured pH.

Yasutaka discloses a sensor apparatus (abstract) comprising

a substrate comprising a plurality of sensors (abstract and Drawings 3, 6, 11, and 12), including

a chlorine sensor (20);

a pH sensor (30);

a temperature sensor (40);

and

an analyzer (implied by Technical Problem, which discloses ion sensor measurement corrected based on output signals form the pH sensor, temperature, and flow rate sensor).

Yasutaka further discloses having the analyzer configured to correct a

measurement of the chloride sensor based upon the measured pH (see the abstract and Technical Problem and [0027] in Effect of the Invention).

It would have been obvious to one with ordinary skill in the art at the time of the invention to have the analyzer of Gazzari also configured to correct a measurement of the chlorine sensor based upon the measured pH as taught by Yasutaka because this will increase the accuracy of the chlorine measurement. This is especially important for the invention of Gazzari since the sensor array is intended for process control in industrial plants including pharmaceutical synthesis and food processing. See [0003].

As for having the analyzer configured to correct a measurement of the first ion selective electrode sensor based upon the measured conductivity and temperature this would have been obvious in light of Yasutaka because Yasutaka also corrects the measurement of chorine based on temperature and other measured sample parameters (Technical Problem); Yasutaka more broadly teaches that the detection precision of a specific ion may be corrected by using the output of various sensors that characterize the sample such as pH sensor, temperature sensor, and a flow rate sensor ([0005] in Detailed Description); it was known at the time of the invention that conductivity measurements can be used to improve the accuracy of a measurement by an ion-specific electrode (see, for example, Shion abstract and Thomas col. 1:1-60), and Yasutaka already provides a conductivity sensor.

Addressing claim 25, as noted in the rejection of claim 24 it was known at the time of the invention that the temperature and conductivity measurements can be used

to improve the measurement by an ion-specific electrode. Thus, if several ion-specific electrodes are used, as Gazzari does the measurements of some or all of them will be corrected based on temperature and conductivity as needed.

Addressing claim 26, Gazzari as modified by Yasutaka, Shion, and Thomas Thomas disclose, through specific examples, that different electrodes may adversely affect the measurements of other adjacent electrodes and further teach correcting the measurement of one electrode based on the measurement of one or more of the other electrodes. Although they do not mention the specific measurement correction of claim 26, in light of Gazzari as modified by Yasutaka, Shion, and Thomas one with ordinary skill in the art would carry out experiments to determine whether further interferences among the electrodes were occurring and then correct for such interference(s) depending on the desired measurement accuracy.

Double Patenting

17. Applicant is advised that should claim 3 be found allowable, claim 13 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two

claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

18. Applicant is advised that should claim 4 be found allowable, claim 14 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Allowable Subject Matter

19. Claim 17 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

20. The following is a statement of reasons for the indication of allowable subject matter:

a) Claim 17 requires the bicarbonate ion sensor to be "a differential pCO_2 sensor comprising an unbuffered pH-sensitive electrode sensor and a buffered pH-selective electrode sensor, said buffered pH-selective electrode sensor of said differential pCO_2 sensor being the same or different as the ion selective electrode comprising said pH sensor."

In contrast, in Wong as modified by Ishizuka and Taira the bicarbonate ion sensor is much simpler. It avoids having to provide the pCO_2 sensor, which has two pH electrodes, as recited and the concomitant more complicated measurement technique, because in Wong as modified by Ishizuka and Taira a single electrode with a long-lasting highly selective bicarbonate selective membrane is used. See in Taira col. 1:1-15 and col. 2:61 – col. 3:3. it should be noted that the carbonate sensor of Ishizuka, which can also measure

bicarbonate, also does not require a preliminary pH measurement or adding a pH buffer to the sample.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEX NOGUEROLA whose telephone number is (571) 272-1343. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NAM NGUYEN can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alex Noguerola
Primary Examiner
AU 1753
March 19, 2006